

NATURAL RAINFALL.

DOES NATURE SLIGHT LAND IF TREES HAVE BEEN REMOVED?

A Problem That the Son of Columbus Started Out to Solve—Many Scientists of Various Countries Have Given the Subject Much Study.

A son of Christopher Columbus once undertook a task of discovery that proved much more difficult than that which his father had tackled so successfully. In a comparatively short time Christopher had the solution of his problem. The answer which his son, Fernando, set out to find is still missing. But the younger Columbus thought he had discovered the true relations of forests to water supplies, and he announced that the copious rainfall of Jamaica was produced by the island's wealth of forests and that the decrease of rain in the Azores and Canaries was because of the removal of the woods. I am sure that for as long as men have given any thought to this matter it has been the common supposition that forests increase the rainfall within the area of their supposed influence, and in that way and other ways augment the flow of brooks and rivers. The earlier efforts to determine through scientific methods whether there is any good ground for the supposition were made with appliances so crude that the margin for error must have been considerably in excess of the influence, if any, which the investigators hoped to measure. In later years efforts in the same direction have been made with great pains, mostly in European countries, but the problem has been found to have so many factors that, although the mass of information collected is extremely interesting, the main question remains practically unanswered. The results of these efforts, together with some interesting observations thereon, are set forth in a bulletin of the forestry division of the department of agriculture.

Water comes as near being indestructible as any substance of which we know. Consequently the total quantity of it in the earth and in the earth's atmosphere is always the same. Only a very small percentage of it is what one of the writers in this bulletin terms the circulating part of the earth's water capital. The sun makes vapor of water that is lying at its level or is on the way to find its level. This vapor is condensed until it is heavier than the air and starts again toward its level, and that is how the circulation goes on. In what way does the presence of forests influence this circulation?

It would be a long story to tell of the methods employed in France, Germany, Sweden, Austria and other countries of Europe to measure the various influences that must be considered in determining how and to what extent the rainfall and the flow of streams are affected by the presence of forests. A very important factor, since heat is what starts the movement of the earth's circulating water capital, is the matter of temperature, and the results of the investigations seem to show beyond dispute that forests reduce the maxima and the minima of temperature, that they reduce the maxima more than the minima, and that consequently their effect is to make the average temperature for the year cooler.

Also, their moderating influence in greater than their cooling effect. Because the air above forest regions is slightly cooler than the strata above treeless tracts, condensation should be more rapid than over open fields, and the rainfall should be greater. These cooler bodies of air, being blown over adjacent regions that are not wooded, should also increase somewhat the precipitation there. That is the theory, and it seems to be in some degree supported by the measurements that have been made.

Accepting the conclusion that, in general, forests increase slightly the fall of rain, snow and dew, it remains to be determined how much of this increase is available for beneficial purposes. Part of it is intercepted by foliage, and is returned to the atmosphere by evaporation without having reached the ground. The proportion so retained varies with the nature of the foliage, the density of the forest and the season of the year. The retention by evergreen trees is less than by deciduous trees, and it is estimated that perhaps 20 per cent of the precipitation is thus intercepted and returned to the atmosphere. Of course this interception and evaporation go on where the surface of the earth is covered by grass and other growing crops. Whether it is sufficiently greater in the forest than in the field to do away with the excess of precipitation on wooded tracts over that on cleared areas is an unsettled question.

Of the 80 per cent of rainfall which, it is estimated, reaches the ground in forests, a part is very quickly returned to the atmosphere by evaporation, but here the loss is considerably less than in the open field. Under certain conditions it is not more than 10 per cent of what it would be on bare soil, but the conditions are so various that it is difficult to arrive at an average. Again, out of this 70 per cent of precipitation which reaches the ground in wooded areas must be deducted the loss by transpiration, "the process by which the plant gets rid of the surplus water after having drawn it from the soil in order to extract from it the nutriment which is present in only a very highly attenuated solution." Various ingenious methods have been resorted to for determining the amount of moisture used in this way, but because of the many factors having to do with it, the amount for the various kinds of vegetation can be indicated only with a wide margin for variations.

While as it stands now nobody can say, as a result of scientific investigation, whether forests increase the fall of rain, snow or dew to an appreciable extent, there is no room for doubt that wooded areas are valuable conservators of moisture. In this way they make the flow of streams more even, and they preserve the constancy of springs. In wooded areas there is less loss by interception and evaporation in the foliage and by transpiration, and there is a considerable gain in the protection from evaporation from the surface of the ground. It is not probable that this conservation of the water supply comes anywhere near the mark drawn by those who hold that the preservation of woodland insures an abundance of water supply, but the benefits resulting from rain forest are sufficient to be considered among the other excellent reasons for looking well to the preservation of forests.

—New York Sun.

**A Year's Railroad Losses.**  
Colonel H. G. Pratt, editor of The Railroad Gazette, in a lecture before the Association of Civil Engineers of Cornell university, estimated that the annual loss from railroad accidents in the United States, due to the destruction of railroad property and the compensation for deaths and injuries, and leaving out entirely the destruction of merchandise, reaches over \$12,000,000.—Iron Age.

**J. E. GOMES.**

MANUFACTURING JEWELER, AND IMPORTER OF  
Diamonds, Watches, Silverware and Fine Jewelry.

**HAWAIIAN - SOUVENIRS.**  
GENERAL REPAIRING.

409 Fort Street, Honolulu. 43 21f

HIS GREAT SCHEME.

His Quarter Was Bad, but the Inkstand Was All Right.

"What," asked a little man who entered an up town office abruptly, "is the greatest expense connected with your living?" The occupant of the office seemed surprised. "I suppose," he said after a moment's reflection, "that it's a toss up between grub and beer."

"No such thing!" shouted the little man excitedly. "I don't mean expenses for food and drink. I mean other and semi-extraneous expenses, so to speak. Think, now, what is the greatest expense connected with your living?"

The occupant of the office wrinkled his forehead. At last he said, "Speaking semi-extraneously, to follow your suggestion, I should say it was tobacco."

"Not that!" almost shouted the little man. "It's not. I see that you don't know. I will tell you. It is clean shirts and collars and cuffs."

The occupant of the office looked surprised. "I don't believe it," he said. "But it is," insisted the little man, "and I'll prove it to you. Mind you, I mean expenses that are unnecessary. Now, unless you neglect the commonest laws of decency, you wear at least two clean shirts a week. You average six collars a week and half as many pairs of cuffs, to say nothing of the other clean clothes that you wear. This is all wrong. The money that a man spends in this way can be saved. I know a plan whereby your laundry will last 10 days after it returns from the shop and be as clean as when you first got it."

The occupant of the office looked interested. "That would be a saving," he said. "Selling!" continued the little man, "it would be a godsend. The institutions that are supplying the lifeblood of this country are the laundries. I propose to fix things so that a shirt shall be stopped. I will tell you this secret for \$5."

The occupant of the office smiled incredulously. "I won't venture that much on it," he said. "I'll do it for \$2.50," said the little man. "Too much."

"A dollar!" "No." "A half!" "No." "A quarter!" "Gimme a quarter!"

"Yes," said the occupant of the office. "He handed over a quarter. The little man clutched it greedily. 'I have agreed to tell you a secret which will preserve your laundry in all its pristine whiteness for 10 days after it has been done up,' he said. 'Exactly.'

The little man edged toward the door. "Keep it in the bureau drawer and don't wear it!" he shouted, with his hand on the doorknob.

"Huh!" said the occupant of the office, with a sickly smile, "that's a pretty low down little bunko." The little man had slipped out into the hall and was making for the elevator. The occupant of the office stuck his head out and shouted, "Say!" The little man turned and placed his fingers nervously on his nose. "Say!" shouted the occupant of the office again, "I just thought I'd tell you that that quarter is dead."

"Well," shouted the little man in reply, "there ain't nothing the matter with this silver inkstand I got on your desk."

Then he vanished down the stairs, and the occupant of the office has been so cross ever since that his wife talks of divorce.—Buffalo Express.

**He Suspected an Ad.**  
"Oh!" she exclaimed as she entered the police station in a state of great anxiety. "You will help me, won't you?"

"The officer in charge assured her that he would if it was in his power. "I have just met with a great loss," she continued. "What was it?"

"Diamonds. I had just finished rehearsal when I was an actress!" "Yes." "And lost your diamonds?" "Yes."

"Excuse me, ma'am, but you're in the wrong place. This is police headquarters. It isn't any newspaper office."—Washington Star.

**The Same Then as Now.**

Here is an extract from the diary of a lady of fashion of the last century which has the note of complaint of the present day: "Our streets are not wide enough for the carriages, nor the week long enough for one's engagements. There isn't enough money or enough time to spend it in. In short, such a mess."—Boston Transcript.

**Different.**

Spencer—I see that the latest strong man is able to break a quarter in two pieces. Ferguson—He must have been out of sorts the other day when I saw him at the races. Spencer—Why so? Ferguson—Somebody asked him to break a \$5 bill, and he could not do it.—Life.

**Unsophisticated.**

Daughter—I had to stand in the street car nearly the whole distance. Mother—Such insolence! If you had simply stood on some gentleman's toes, he would have given you a seat.—New York Weekly.

**A Fifty Years' Tryst.**

Dr. Nevins tells a very touching story in his "Disorders of the Brain." A patient of his, a young lady engaged to be married, was often visited by her intended husband by the stagecoach, which passed within a mile or two of her house. One day she went to meet him and found instead an old friend, who brought the news of his sudden death. She uttered a frightful scream. "He is dead!" and then all consciousness of her misfortune ceased. "Day by day for 50 years did this poor creature in all seasons journey to the spot where she expected to see her lover alight from the coach, and day by day she uttered in a plaintive tone: 'He is not coming yet. I will return tomorrow.' " Could anything be sadder than this romance from a doctor's notebook?

**Reading a Girl's Letter.**

A caution to girls who write indiscriminately to young men was seen on one of our street corners the other day. A youth evidently not in the habit of receiving many letters was reading aloud to a companion a mislaid which any passerby could see was intended for "Dear Will" alone, but the young man evidently enjoyed the contents as well as the reader.—Springfield Graphic.

**The Author of "Kathleen Mavourneen."**

A young art student of New York, who used to live next door to the author of that tenderest of love songs, "Kathleen Mavourneen," is authority for the statement that he was a cross and crabbed old man of whom all the children in the neighborhood were afraid.—New York Times.

**C. B. RIPLEY.**

**ARCHITECT.**  
OFFICE—New Safe Deposit Building.  
HONOLULU, H. I.

Plans, Specifications, and Superintendence given for every description of Building. Old Buildings successfully remodelled and enlarged. Designs for Interior Decorations. Maps or Mechanical Drawing, Tracing, and Blueprinting. Drawing for Books or Newspaper Illustration.

309 Fort Street, Honolulu.

General Advertisements.

The summer boarder was fishing when Farmer Begosh came along.

"Gee whillikens! what an airth air you a-doin!" he exclaimed as the sportsman deposited a small fish in his basket. "I'm fishing," was the reply. "You advertised good fishing, didn't you?" "Yes. Don't you know the fish'll die if you keep 'em out o' water? You don't think I'm goin ter spend money every week puttin new fish into that there pond jes' fur you city folks to ketch, do you? No, air-ree!" and the proprietor of rural joys turned the contents of the basket into the pond and indignantly strode on.—Washington Star.

Her Intentions.



Ada—Why does Clara speak of George as "her intended"? Are they engaged? Alice—No, but she intends that they shall be.—Brooklyn Life.

Earning a Smoke.

Tom Jenkins was as great a joker as he was a smoker. He once got into a first class compartment in a railway carriage where a sour looking old gentleman was seated. "You mustn't smoke here," said the old gent as Jenkins pulled out his pipe from his pocket. "I know that," said Jenkins, calmly filling his pipe. "Did I not tell you," said the old gent again, "that you mustn't smoke here? It's not a smoking compartment."

"I know that," said Jenkins, calmly taking out his fusee box. "They're a special kind that he prides himself on. He calls them his 'patent stinkers.' He lit a fusee, and now the wrath of the old gent was frightful. "I say, sir, you shan't smoke here," he shrieked.

"I know that," said Jenkins, allowing his fusee to exhaust itself. He lit one after another, allowing them to burn out. The brimstone was awful and the smoke suffocating. The old gent was coughing and spluttering and struggling for words. "I say, sir," he exclaimed at length, "smoke, smoke, smoke; for goodness' sake, smoke!"

"Thanks, awfully!" said Jenkins as he lit another fusee and this time applied it to the expectant pipe.—Tit-Bits.

Waiting For Wind.

Small Boy (on river bank)—Do you know 'bout weather? Old Gentleman—I have studied meteorology a little. "Well, I've been standin here 'most a hour waitin for the wind to blow hard, and it don't blow a bit. Do you think it will soon?"

"I shouldn't wonder, my little man. The sky looks very streaky. But what do you want of wind?" "I want to have a swim."

"It does not require wind to go swimming." "No, but mamma won't let me go in. That's why I want wind."

"I don't understand." "Don't? Guess it's a good while since you was a boy, isn't it?" "Yes, a good while."

"And your mem'ry isn't very good, I s'pose?" "Perhaps not. I certainly cannot recall any connection between wind and swimming."

"W'y, don't you see? If a wind comes along and blows my hat into the water, I can go after it, and mamma won't say a word. She paid a dollar an a half for that hat."—Good News.

A Simple Menu.

"This is a beautiful morning, Mary," said Mr. Fulton graciously as he took his seat at the table at Farnum's select country boarding house. "Yes, sir, it is," replied the waitress. "The thunderstorm passed off nicely in the night."

"Looks like cooler weather." "Yes, sir." "I hope you are feeling quite well, Mary." "Quite well, sir."

"And that you enjoyed the farmers' picnic yesterday." "Pretty well, sir." "And now, let me see. What have we for breakfast this morning?" asked Mr. Fulton as he glanced over the empty table. "Well, there's ham, sir."

"Ah, yes, ham or—what?" he inquired with his most engaging manner. "Ham or nothing!" returned Mary briefly. —Life.

**Explaining It.**

"Look here," said the indignant man to the dealer, "I thought you said this dog was a rabble dog?" "Did I? Oh, yes—of course. Maybe you didn't handle him right."

"What do you mean?" "You want to try him with Welsh rabbits. His appetite for them is simply abnormal."—Washington Star.

**Worse Still.**

Dashaway—I spent \$200 at the World's fair. Cleverton—Does that include the \$10 that I lent you?

Dashaway—Great Scott, old man, I should say so! Why, it includes \$5 more that I was just going to ask you for.—Truth.

**Defined.**

Schoolmaster—Now, Robert, can you tell me how many pints there are in a quart? Publican's Helper—Why, yes, sir. One and a half and the froth.—Tit-Bits.

**When I Get Time.**

When I get time— I know what I shall do: I'll read the leaves of my books And read them through and through.

When I get time— I'll write some letters then That I have owed for weeks and weeks To many, many men.

When I get time— I'll pay those calls I owe, And with those bills, those countless bills, I will not be so slow.

When I get time— I'll regulate my life In such a way that I may get Acquainted with my wife.

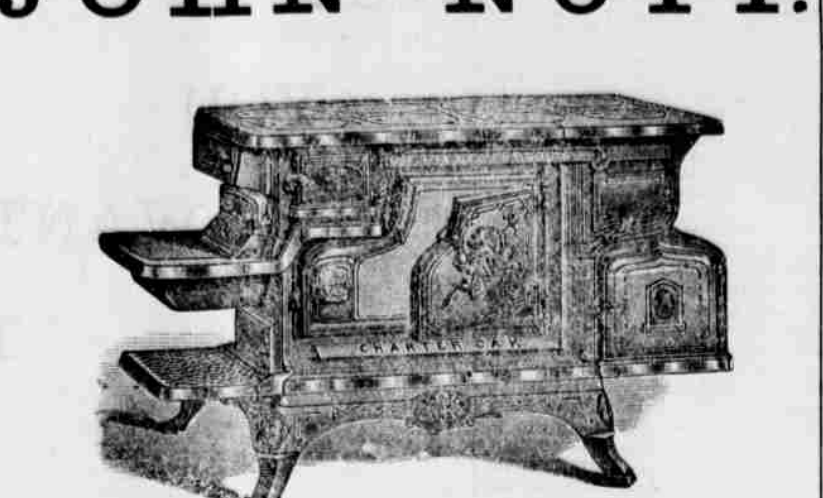
When I get time— Oh, glorious dream of bliss! A month, a year, ten years from now— But I can't finish this— I have no time. —Vogue.

**PACIFIC BRASS FOUNDRY**  
STEAM AND GALVANIZED PIPE, ELBOWS, T-WAYS, GLOBE VALVES, STEAM COCKS, and all other fittings for pipe on hand.  
Honolulu Steam Rice Mill.  
Fresh milled Rice for sale in quantities to suit  
J. A. HOPPER, Prop.  
Fort Street, Honolulu.

**W. AHANA.**  
MERCHANT TAILOR,  
No. 50 Merchant Street, Honolulu.  
Fine suits from \$14 up. Linen and Crepe suits, \$6.50 up.  
ALL SUITS GUARANTEED TO FIT AND IN THE LATEST STYLE.  
CLOTHES CLEANED AND REPAIRED.  
44 21f

General Advertisements.

JOHN NOTT.



Wrought Steel Ranges, Chilled Iron Cooking Stoves.

HOUSEKEEPING GOODS:

AGATE WARE (White, Gray and Nickel-plated), PUMPS, WATER AND SOIL PIPES, WATER CLOSETS AND URINALS, RUBBER HOSE AND LAWN SPRINKLERS, BATH TUBS AND STEEL SINKS, O. S. GUTTERS AND LEADERS, SHEET IRON, COPPER, ZINC AND LEAD, LEAD PIPE AND PIPE FITTINGS.

Plumbing, Tin, Copper and Sheet Iron Work.

DIMOND BLOCK: 95-97 KING STREET.

M. W. McCHESNEY & SONS, M. W. McCHESNEY & SONS,

AGENTS

Honolulu Soap Works Co

PURE

Laundry Soap

42, 56 and 63 bars to case—

One Hundred Pounds.

HIGHEST

PRICE

PAID

FOR

TALLOW!

Club Stables Co.

S. F. GRAHAM, MANAGER.

Livery, Feed and Sale Stables

FORT STREET, BETWEEN HOTEL AND BERETANIA.

BOTH TELEPHONES No. 477.

Connected with Hack Stand

Corner King and Bethel Sts.

BOTH TELEPHONES, No. 113

Hard Times Mean Close Prices

To House Keepers.

If you are in need of any New or Second hand FURNITURE, RUGS, STOVES, SEWING MACHINES, Etc., call at the

I X L

Furniture & Commission House.

Corner Nuuanu and King Streets.

18 1f

W. AHANA.

MERCHANT TAILOR,

No. 50 Merchant Street, Honolulu.

Fine suits from \$14 up. Linen and Crepe suits, \$6.50 up.

ALL SUITS GUARANTEED TO FIT AND IN THE LATEST

STYLE.

CLOTHES CLEANED AND REPAIRED.

44 21f

General Advertisements.

H. S. TREGLOAN & SON,

Merchant Tailors!

OFFER TO THE GENERAL PUBLIC THEIR LARGE

AND COMPLETE STOCK OF

Foreign Woolens for Spring & Summer

AT 20 PER CENT DISCOUNT FOR CASH,

Business Suits Reduced to Twenty-two Dollars and 50 Cents

Business Pants Reduced to Six Dollars and 50 Cents.

Corner Fort & Hotel Sts.

TAHITI

Lemonade Works Co.,

23 Nuuanu, Honolulu, H. I.

MANUFACTURERS OF

High Class Beverages

Lemonade, Soda Water,

Ginger Ale, Hop Ale,

Sarsaparilla,

Plain Soda.

Sarsaparilla and

Iron Water,

Seltzer Water,

Etc., Etc., Etc

A Trial Order Solicited

BENSON, SMITH & CO.,

AGENTS.

H. E. MCINTYRE & BRO.,

IMPORTERS AND DEALERS IN

Groceries, Provisions and Feed

EAST CORNER FORT AND KING STREETS.

New Goods received by every Packet from the Eastern States and Europe, Fresh California Produce by every steamer. All orders faithfully attended to, and Goods delivered to any part of the city free of charge.

Island Orders solicited. Satisfaction guaranteed.

Post Office Box No. 145. Telephone No. 92.

ENTERPRISE PLANING MILL.

PETER HIGH, Proprietor.

OFFICE AND MILL,

On Alakea and Richards near Queen Street, Honolulu, H.I.

MOULDINGS,

Doors, Sash, Blinds, Screens, Frames Etc.

TURNED AND SAWED WORK.

Prompt attention to all orders.

TELEPHONES:

Matual 55 Bell 498.